1632

RAW SEQUENCE LISTING   DATE: 02/19/2002
PATENT APPLICATION: US/09/903,327A   TIME: 15:53:09

Input Set : **A:\Pto.amc**
Output Set: **N:\CRF3\02192002\I903327A.raw**

ENTERED

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  3 <110> APPLICANT: Nemerow, Glen R.
  4        Li, Erguang
  6 <120> TITLE OF INVENTION: BIFUNCTIONAL MOLECULES AND VECTORS COMPLEXED THEREWITH FOR
TARGETED
  7        GENE
  8        DELIVERY
 10 <130> FILE REFERENCE: 22908-1228
C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/903,327A
 13 <141> CURRENT FILING DATE: 2001-07-10
 15 <150> PRIOR APPLICATION NUMBER: 09/613,017
 16 <151> PRIOR FILING DATE: 2000-07-10
 18 <160> NUMBER OF SEQ ID NOS: 33
 20 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 22 <210> SEQ ID NO: 1
 23 <211> LENGTH: 1516
 24 <212> TYPE: DNA
 25 <213> ORGANISM: Mouse
 27 <220> FEATURE:
 28 <221> NAME/KEY: CDS
 29 <222> LOCATION: (28)...(1395)
 30 <223> OTHER INFORMATION: DAV-1 heavy chain, penton base monoclonal antibody
 32 <400> SEQUENCE: 1
 33 cagacactga acacactgac tctaacc atg gga tgg agc tgg atc ttt ctc ttc      54
 34                                 Met Gly Trp Ser Trp Ile Phe Leu Phe
 35                                  1             5
 37 ctc ctg tca gga act gca ggc gtc cac tct gag gtc cag ctt cag cag      102
 38 Leu Leu Ser Gly Thr Ala Gly Val His Ser Glu Val Gln Leu Gln Gln
 39  10              15                  20                  25
 41 tca gga cct gag ctg gtg aaa cct ggg gcc tca gtg aag ata tcc tgc      150
 42 Ser Gly Pro Glu Leu Val Lys Pro Gly Ala Ser Val Lys Ile Ser Cys
 43                  30                  35                  40
 45 aag gct tct gga tac aca ttc act gac tac aac atg cac tgg gtg aag      198
 46 Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr Asn Met His Trp Val Lys
 47              45                  50                  55
 49 cag agc cat gga aag agc ctt gag tgg att gga tat att tat cct tac      246
 50 Gln Ser His Gly Lys Ser Leu Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr
 51          60                  65                  70
 53 aaa ggt ggt act ggc tac aac cag aag ttc aag agc aag gcc aca ttg      294
 54 Lys Gly Gly Thr Gly Tyr Asn Gln Lys Phe Lys Ser Lys Ala Thr Leu
 55          75                  80                  85
 57 aca aca gac agt tcc tcc aac aca gcc tac atg gag ctc cgc agc ctg      342
 58 Thr Thr Asp Ser Ser Ser Asn Thr Ala Tyr Met Glu Leu Arg Ser Leu
 59  90                  95                  100                 105
 61 aca tct gat gcc tct gca gtc tat tac tgt gca aga ggg att gct tac      390
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Input Set : A:\Pto.amc
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62 Thr Ser Asp Ala Ser Ala Val Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr
63                110             115                 120
65 tgg ggc caa ggg act ctg gtc act gtc tct gca gcc aaa acg aca ccc       438
66 Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala Ala Lys Thr Thr Pro
67                125             130                 135
69 cca tct gtc tat cca ctg gcc cct gga tct gct gcc caa act aac tcc       486
70 Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser
71           140             145                 150
73 atg gtg acc ctg gga tgc ctg gtc aag ggc tat ttc cct gag cca gtg       534
74 Met Val Thr Leu Gly Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val
75        155             160                 165
77 aca gtg acc tgg aac tct gga tcc ctg tcc agc ggt gtg cac acc ttc       582
78 Thr Val Thr Trp Asn Ser Gly Ser Leu Ser Ser Gly Val His Thr Phe
79 170             175                 180                 185
81 cca gct gtc ctg cag tct gac ctc tac act ctg agc agc tca gtg act       630
82 Pro Ala Val Leu Gln Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr
83                190             195                 200
85 gtc ccc tcc agc acc tgg ccc agc gag acc gtc acc tgc aac gtt gcc       678
86 Val Pro Ser Ser Thr Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala
87                205             210                 215
89 cac ccg gcc agc agc acc aag gtg gac aag aaa att gtg ccc agg gat       726
90 His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp
91           220             225                 230
93 tgt ggt tgt aag cct tgc ata tgt aca gtc cca gaa gta tca tct gtc       774
94 Cys Gly Cys Lys Pro Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val
95        235             240                 245
97 ttc atc ttc ccc cca aag ccc aag gat gtg ctc acc att act ctg act       822
98 Phe Ile Phe Pro Pro Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr
99 250             255                 260                 265
101 cct aag gtc acg tgt gtt gtg gta gac atc agc aag gat gat ccc gag      870
102 Pro Lys Val Thr Cys Val Val Val Asp Ile Ser Lys Asp Asp Pro Glu
103                270             275                 280
105 gtc cag ttc agc tgg ttt gta gat gat gtg gag gtg cac aca gct cag      918
106 Val Gln Phe Ser Trp Phe Val Asp Asp Val Glu Val His Thr Ala Gln
107                285             290                 295
109 acg caa ccc cgg gag gag cag ttc aac agc act ttc cgc tca gtc agt      966
110 Thr Gln Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser
111           300             305                 310
113 gaa ctt ccc atc atg cac cag gac tgg ctc aat ggc aag gag ttc aaa      1014
114 Glu Leu Pro Ile Met His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys
115        315             320                 325
117 tgc agg gtc aac agt gca gct ttc cct gcc ccc atc gag aaa acc atc      1062
118 Cys Arg Val Asn Ser Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile
119 330             335                 340                 345
121 tcc aaa acc aaa ggc aga ccg aag gct cca cag gtg tac acc att cca      1110
122 Ser Lys Thr Lys Gly Arg Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro
123                350             355                 360
125 cct ccc aag gag cag atg gcc aag gat aaa gtc agt ctg acc tgc atg      1158
126 Pro Pro Lys Glu Gln Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met
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Input Set : A:\Pto.amc
Output Set: N:\CRF3\02192002\I903327A.raw

```
127            365              370              375
129 ata aca gac ttc ttc cct gaa gac att act gtg gag tgg cag tgg aat    1206
130 Ile Thr Asp Phe Phe Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn
131         380              385              390
133 ggg cag cca gcg gag aac tac aag aac act cag ccc atc atg gac aca    1254
134 Gly Gln Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr
135     395              400              405
137 gat ggc tct tac ttc gtc tac agc aag ctc aat gtg cag aag agc aac    1302
138 Asp Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn
139 410              415              420              425
141 tgg gag gca gga aat act ttc atc tgc tct gtg tta cat gag ggc ctg    1350
142 Trp Glu Ala Gly Asn Thr Phe Ile Cys Ser Val Leu His Glu Gly Leu
143             430              435              440
145 cac aac cac cat act gag aag agc ctc tcc cac tct cct ggt aaa        1395
146 His Asn His His Thr Glu Lys Ser Leu Ser His Ser Pro Gly Lys
147         445              450              455
149 tgatcccagt gtccttggag ccctctggtc ctacaggact ctgtcaccta cctccacccc  1455
150 tccctgtata aataaagcac ctagcactgc cttgggaccc tgcaataaaa aaaaaaaaaa  1515
151 a                                                                  1516
153 <210> SEQ ID NO: 2
154 <211> LENGTH: 456
155 <212> TYPE: PRT
156 <213> ORGANISM: Mouse
158 <220> FEATURE:
159 <221> NAME/KEY: PEPTIDE
160 <222> LOCATION: (0)...(0)
161 <223> OTHER INFORMATION: DAV-1 heavy chain, penton base monoclonal antibody
163 <400> SEQUENCE: 2
164 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
165 1               5               10              15
166 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
167             20              25              30
168 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
169         35              40              45
170 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
171     50              55              60
172 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
173 65              70              75              80
174 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
175             85              90              95
176 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
177         100             105             110
178 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
179         115             120             125
180 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
181     130             135             140
182 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
183 145             150             155             160
184 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
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RAW SEQUENCE LISTING   DATE: 02/19/2002
PATENT APPLICATION: US/09/903,327A   TIME: 15:53:09

Input Set : A:\Pto.amc
Output Set: N:\CRF3\02192002\I903327A.raw

```
185                   165              170               175
186 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
187               180               185               190
188 Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
189           195               200               205
190 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
191       210               215               220
192 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
193 225               230               235               240
194 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
195               245               250               255
196 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
197           260               265               270
198 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
199           275               280               285
200 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
201       290               295               300
202 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
203 305               310               315               320
204 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
205               325               330               335
206 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
207           340               345               350
208 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
209           355               360               365
210 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
211       370               375               380
212 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
213 385               390               395               400
214 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
215               405               410               415
216 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
217           420               425               430
218 Ile Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr Glu Lys
219           435               440               445
220 Ser Leu Ser His Ser Pro Gly Lys
221       450               455
223 <210> SEQ ID NO: 3
224 <211> LENGTH: 831
225 <212> TYPE: DNA
226 <213> ORGANISM: Mouse
228 <220> FEATURE:
229 <221> NAME/KEY: CDS
230 <222> LOCATION: (13)...(726)
231 <223> OTHER INFORMATION: DAV-1 light chain, penton base monoclonal antibody
233 <400> SEQUENCE: 3
234 aagcttaccg cc atg gag aca gac aca atc ctg cta tgg gtg ctg ctg ctc        51
235               Met Glu Thr Asp Thr Ile Leu Leu Trp Val Leu Leu Leu
236                1               5                   10
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Input Set : **A:\Pto.amc**
Output Set: **N:\CRF3\02192002\I903327A.raw**

```
238 tgg gtt cca ggc tcc act ggt gac att gtg ctg acc caa tct cca gct        99
239 Trp Val Pro Gly Ser Thr Gly Asp Ile Val Leu Thr Gln Ser Pro Ala
240     15                  20                  25
242 tct ttg gct gtg tct cta ggg cag agg gcc acc atc tcc tgc aag gcc       147
243 Ser Leu Ala Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Lys Ala
244  30                  35                  40                  45
246 agc caa agt gtt gat tat gat ggt gat agt tat atg aac tgg tac caa       195
247 Ser Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln
248                  50                  55                  60
250 cag aaa cca gga cag cca ccc aaa ctc ctc atc tat gct gca tcc aat       243
251 Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser Asn
252                  65                  70                  75
254 tta gaa tct ggg atc cca gcc agg ttt agt ggc agt ggg tct ggg aca       291
255 Leu Glu Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr
256             80                  85                  90
258 gac ttc acc ctc aac atc cat cct gtg gag gag gag gat gct gca acc       339
259 Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp Ala Ala Thr
260         95                  100                 105
262 tat tac tgt cag caa act aat gag gat ccg tgg acg ttc ggt gga ggc       387
263 Tyr Tyr Cys Gln Gln Thr Asn Glu Asp Pro Trp Thr Phe Gly Gly Gly
264 110                 115                 120                 125
266 acc aag ctg gaa atc aaa cgg gct gat gct gca cca act gta tcc atc       435
267 Thr Lys Leu Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile
268                 130                 135                 140
270 ttc cca cca tcc agt gag cag tta aca tct gga ggt gcc tca gtc gtg       483
271 Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val
272             145                 150                 155
274 tgc ttc ttg aac aac ttc tac ccc aaa gac atc aat gtc aag tgg aag       531
275 Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys
276         160                 165                 170
278 att gat ggc agt gaa cga caa aat ggc gtc ctg aac agt tgg act gat       579
279 Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp
280     175                 180                 185
282 cag gac agc aaa gac agc acc tac agc atg agc agc acc ctc acg ttg       627
283 Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu
284 190                 195                 200                 205
286 acc aag gac gag tat gaa cga cat aac agc tat acc tgt gag gcc act       675
287 Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr
288                 210                 215                 220
290 cac aag aca tca act tca ccc att gtc aag agc ttc aac agg aat gag       723
291 His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser Phe Asn Arg Asn Glu
292             225                 230                 235
294 tgt tagagacaaa ggtcctgaga cgccaccacc agctccccag ctccatccta           776
295 Cys
298 tcttcccttc taaggtcttg gaggcttcct cgagcggtaa agggcgaatt ccagc         831
300 <210> SEQ ID NO: 4
301 <211> LENGTH: 238
302 <212> TYPE: PRT
303 <213> ORGANISM: Mouse
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VERIFICATION SUMMARY   DATE: 02/19/2002
PATENT APPLICATION: **US/09/903,327A**   TIME: 15:53:10

Input Set : **A:\Pto.amc**
Output Set: **N:\CRF3\02192002\I903327A.raw**

L:12 M:270 C: Current Application Number differs, Replaced Current Application Number
L:350 M:351 W: Sequence data Name/Key Feature Out-of-Range, SEQ ID#:5, CDS LOCATION: (0)...
(1314)